Permit Fact Sheet

General Information

<table>
<tr><td>Permit Number:</td><td colspan="2">WI-0020222-10-0</td></tr>
<tr><td>Permittee Name:</td><td colspan="2">City of Cedarburg</td></tr>
<tr><td>Address:</td><td colspan="2">PO Box 49
W63 N645 Washington</td></tr>
<tr><td>City/State/Zip:</td><td colspan="2">Cedarburg, WI 53012</td></tr>
<tr><td>Discharge Location:</td><td colspan="2">West bank of Cedar Creek ¼ mile upstream from the bridge at Green Bay Road and Hamilton Road (Lat.: 43°17.3631’N, Long.: 87°58.4923’ W)</td></tr>
<tr><td>Receiving Water:</td><td colspan="2">Cedar Creek (Cedar Creek Watershed, Milwaukee River Basin) in Ozaukee County</td></tr>
<tr><td>Stream Flow ($Q_{7,10}$):</td><td colspan="2">Annual 7Q10 of Cedar Creek at the discharge is 5.3 cfs. Monthly flows have been obtained by Cedarburg from the USGS. See table below for monthly flows.
<table>
<tr><td></td><td>Jan</td><td>Feb</td><td>Mar</td><td>Apr</td><td>May</td><td>Jun</td><td>Jul</td><td>Aug</td><td>Sep</td><td>Oct</td><td>Nov</td><td>Dec</td></tr>
<tr><td>7-Q_{10} (cfs)</td><td>11</td><td>13</td><td>23</td><td>48</td><td>26</td><td>13</td><td>9.1</td><td>8.2</td><td>9.1</td><td>11</td><td>16</td><td>13</td></tr>
</table></td></tr>
<tr><td>Stream Classification:</td><td colspan="2">Warm Water Sport Fish, fish and aquatic life, non-public water supply. Cedar Creek is on the 303(d) list and is listed as being impaired for PCBs.</td></tr>
<tr><td rowspan="4">Design Flow(s)</td><td>Daily Maximum</td><td>7.85 MGD (1986 Facility Plan)</td></tr>
<tr><td>Weekly Maximum</td><td>Not Available</td></tr>
<tr><td>Monthly Maximum</td><td>Not Available</td></tr>
<tr><td>Annual Average</td><td>2.75 MGD (1986 Facility Plan)</td></tr>
<tr><td>Significant Industrial Loading?</td><td colspan="2">Yes, Kemp’s Dairy (milk bottling facility with some seasonal milk products)</td></tr>
<tr><td>Operator at Proper Grade?</td><td colspan="2">Yes; the Superintendent and Operator in Charge (OIC) Eric Hackert, is certified at the proper grades. Cedarburg WWTP is an Advanced plant. Subclasses required: A1, B, C, P, D, SS.</td></tr>
<tr><td>Approved Pretreatment Program?</td><td colspan="2">Not Applicable</td></tr>
</table>

Facility Description

The City of Cedarburg operates a municipal wastewater treatment plant with an annual average design flow of 2.75 MGD and serves an approximate population of 11,600 people with one significant industrial user. Treatment consists of a step screen, washer press, grit classifier, a three ring oxidation ditch and two secondary clarifiers. The three oxidation ditch consists of an anaerobic channel at the beginning for biological nutrient (phosphorus) removal, and an anoxic zone at the beginning of the first (outer) ditch for denitrification. Ferric chloride is added to the outer ring to aid in phosphorus removal. The oxidation ditches are aerated with mechanical aerators. The effluent is disinfected with ultraviolet light and flows through a cascade aerator before being discharged to Cedar Creek. Waste sludge is gravity thickened and stabilized with aerobic digestion before being hauled off-site to another permitted facility. If sludge is land applied it must be applied onto Department approved agricultural sites.

The collection system for Cedarburg is separate sewer and the facility is covered under a 'No Exposure Certification' for storm water.

Substantial Compliance Determination

After a desk top review of all discharge monitoring reports, CMARs, land app reports, compliance schedule items, and a site visit on September 22, 2021, this facility has been found to be in substantial compliance with their current permit.

Sample Point Designation		
Sample Point Number	**Discharge Flow, Units, and Averaging Period**	**Sample Point Location, Waste Type/sample Contents and Treatment Description (as applicable)**
701	2.13 MGD (April 2017 – September 2021)	INFLUENT: 24-Hr flow proportional composite sample collected from the raw influent pipe prior to bar screen. Sample does not include any sidestream flows.
001	No effluent flow data available. Effluent flow monitoring was not a permit requirement in the current permit but is added to the proposed permit.	EFFLUENT: 24-hr flow proportional composite samples shall be collected at the intake prior to UV disinfection; Grab samples shall be collected after UV disinfection and DO measurements shall be taken by continuous probe prior to cascade aerator and must also be checked by ch. NR 219, Wis. Adm. Code approved method.
002	253 dry U.S. tons generated annually (per 2021 permit application)	Aerobically digested, Class B, Liquid Sludge, samples shall be collected either from the sampling line off the aerobic digestors or after mixing from the remote holding tank prior to hauling. Sludge samples shall be collected prior to hauling and test results shall be reported on Form 3400-49 'Waste Characteristics Report'. Hauled sludge reports shall be submitted on Form 3400-52 'Other Methods of Disposal or Distribution Report' following each year that the sludge is hauled.
110	N/A	Collect the mercury field blank using standard sample handling procedures
601	New sample point added as a condition of adaptive management requirements.	In-stream Sampling Point 601: Representative water samples shall be collected from Cedar Creek. Sample Point 601 is located downstream of the Cedarburg Water Recycling Center outfall and just upstream from the confluence with the Milwaukee River (Lat. 43.29061, Long. -87.9505). Sample point 601 correlates with sample location #5 described in the approved AM Plan No. WQT-2021-0011 (September 2021).

1 Influent - Proposed Monitoring

1.1 Sample Point Number: 701- INFLUENT PLANT

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Flow Rate		MGD	Daily	Continuous	
BOD5, Total		mg/L	4/Week	24-Hr Flow Prop Comp	
Suspended Solids, Total		mg/L	4/Week	24-Hr Flow Prop Comp	
Mercury, Total Recoverable		ng/L	Annual	24-Hr Flow Prop Comp	See mercury monitoring section below.

1.1.1 Changes from Previous Permit:

Influent monitoring requirements were re-evaluated for the proposed permit term and no changes are needed from the previous permit.

1.1.2 Explanation of Limits and Monitoring Requirements

BOD_5 and Total Suspended Solids: Tracking of BOD_5 and Suspended Solids are required for percent removal requirements found in s. NR 210.05, Wis. Adm. Code and in the Standard Requirements section of the permit.

Monitoring frequencies for influent BOD_5 and TSS were evaluated and continue at 4 times per week in the proposed permit. Influent monitoring frequencies were retained based on the following considerations:

- Actual vs. Design Flow Comparison: Actual average flow (2.13 MGD) remains below the annual average design flow (2.75MGD).
- Plant Performance: The facility consistently meets BOD_5 and TSS effluent limits, maintains permit compliance, and does not have a history of plant upsets.
- Influent Variability: In review of the influent sampling collected for BOD_5 and TSS over the last permit term, there was little variability in influent loading to the plant.
- Influent Sources: The plant receives primarily domestic waste from the collection system and domestic holding tank waste and does not receive complex waste or high strength industrial waste that would warrant an increase in monitoring frequency.

Mercury: Mercury monitoring is included in the proposed permit pursuant to s. NR 106.145, Wis. Adm. Code. Required field blanks for Mercury monitoring per ss. NR 106.145(9) and (10), Wis. Adm. Code, requirements. The permittee shall collect a mercury field blank for each set of mercury samples (as set of samples may include a combination of influent, effluent or other samples all collected on the same day). The permittee shall report results of effluent samples and field blanks to the Department on Discharge Monitoring Reports.

2 Inplant - Proposed Monitoring and Limitations

2.1 Sample Point Number: 110- Effluent Mercury Blank

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Mercury, Total Recoverable		ng/L	Annual	Blank	See mercury monitoring section below.

2.1.1 Changes from Previous Permit:

In-plant monitoring requirements were re-evaluated for the proposed permit term and no changes are needed from the previous permit.

2.1.2 Explanation of Limits and Monitoring Requirements

Required field blanks for Mercury monitoring are per ss. NR 106.145 (9) and (10), Wis. Adm. Code requirements. The permittee shall collect a mercury field blank for each set of mercury samples (a set of samples may include a combination of influent, effluent or other samples all collected on the same day). The permittee shall report results of influent and effluent samples and field blanks to the Department on Discharge Monitoring Reports.

3 Surface Water - Proposed Monitoring and Limitations

3.1 Sample Point Number: 001- EFFLUENT

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Flow Rate		MGD	Daily	Continuous	
BOD5, Total	Weekly Avg	15 mg/L	4/Week	24-Hr Flow Prop Comp	Limit effective November - April.
BOD5, Total	Weekly Avg	10 mg/L	4/Week	24-Hr Flow Prop Comp	Limit effective May - October.
BOD5, Total	Monthly Avg	15 mg/L	4/Week	24-Hr Flow Prop Comp	Limit effective November - April.
BOD5, Total	Monthly Avg	10 mg/L	4/Week	24-Hr Flow Prop Comp	Limit effective May - October.
BOD5, Total	Weekly Avg	344 lbs/day	4/Week	Calculated	Limit effective November - April.
BOD5, Total	Weekly Avg	229 lbs/day	4/Week	Calculated	Limit effective May - October.
Suspended Solids, Total	Weekly Avg	15 mg/L	4/Week	24-Hr Flow Prop Comp	Limit effective November, December, January, and

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
					May.
Suspended Solids, Total	Weekly Avg	12 mg/L	4/Week	24-Hr Flow Prop Comp	Limit effective February - April and June - October.
Suspended Solids, Total	Monthly Avg	12 mg/L	4/Week	24-Hr Flow Prop Comp	Limit effective year round.
Suspended Solids, Total	Weekly Avg	323 lbs/day	4/Week	Calculated	Limit effective in January.
Suspended Solids, Total	Weekly Avg	344 lbs/day	4/Week	Calculated	Limit effective February - December.
Dissolved Oxygen	Daily Min	6.0 mg/L	4/Week	Grab	Limit effective year round.
pH Field	Daily Max	9.0 su	4/Week	Grab	Limit effective year round.
pH Field	Daily Min	6.0 su	4/Week	Grab	Limit effective year round.
E. coli	Geometric Mean - Monthly	126 #/100 ml	Weekly	Grab	Limit effective May - September annually.
E. coli	% Exceedance	10 Percent	Monthly	Calculated	Limit effective May - September annually. See the E. coli Percent Limit section below. Enter the results in the DMR on the last day of the month.
Nitrogen, Ammonia (NH3-N) Total	Daily Max	21 mg/L	4/Week	24-Hr Flow Prop Comp	Limit effective November - April.
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	13 mg/L	4/Week	24-Hr Flow Prop Comp	Limit effective November - March.
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	8.0 mg/L	4/Week	24-Hr Flow Prop Comp	Limit effective in April.
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	5.3 mg/L	4/Week	24-Hr Flow Prop Comp	Limit effective May - September.
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	11 mg/L	4/Week	24-Hr Flow Prop Comp	Limit effective in October.
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	6.4 mg/L	4/Week	24-Hr Flow Prop Comp	Limit effective November - March.
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	4.0 mg/L	4/Week	24-Hr Flow Prop Comp	Limit effective in April.
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	3.3 mg/L	4/Week	24-Hr Flow Prop Comp	Limit effective May - September.

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	5.7 mg/L	4/Week	24-Hr Flow Prop Comp	Limit effective in October.
Nitrogen, Total Kjeldahl		mg/L	Quarterly	24-Hr Flow Prop Comp	
Nitrogen, Nitrite + Nitrate Total		mg/L	Quarterly	24-Hr Flow Prop Comp	
Nitrogen, Total		mg/L	Quarterly	Calculated	Total Nitrogen shall be calculated as the sum of reported values for Total Kjeldahl Nitrogen and Total Nitrite + Nitrate Nitrogen.
Phosphorus, Total	Monthly Avg	0.8 mg/L	4/Week	24-Hr Flow Prop Comp	This is a technology-based limit that is in effect upon permit reissuance and remains in effect throughout the permit term. This limit also serves as an interim limit until the 0.6 mg/L adaptive management interim limit takes effect on May 1, 2022.
Phosphorus, Total	6-Month Avg	0.6 mg/L	4/Week	24-Hr Flow Prop Comp	This is an adaptive management interim limit that goes into effect May 1, 2022. An interim limit of 0.5 mg/L may be effective during future permit terms. See the schedules section and effluent requirements below.
Phosphorus, Total		lbs/day	Monthly	Calculated	Calculate the daily mass discharge of phosphorus in lbs/day on the same days phosphorus sampling occurs.
Chloride	Weekly Avg	490 mg/L	4/Month	24-Hr Flow Prop Comp	Sampling shall be done on four consecutive days. The final water quality based effluent limit becomes effective on October 1, 2024 per the Schedules section. See Chloride

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
					section below.
Chloride	Monthly Avg	490 mg/L	4/Month	24-Hr Flow Prop Comp	Sampling shall be done on four consecutive days. The final water quality based effluent limit becomes effective on October 1, 2024 per the Schedules section. See Chloride section below.
Chloride	Weekly Avg - Variable	lbs/day	4/Month	Calculated	Limit effective October 1, 2024. Report the chloride mass results in the Chloride Weekly Average Mass column on the DMR. Compare to the Variable Chloride Mass Limitation chart to determine compliance.
Chloride, Variable Limit		lbs/day	4/Month	Calculated	Limit effective October 1, 2024. Look up the variable chloride mass limit in the "Alternative Wet Weather Chloride Mass Limitation" section below. Report the variable limit in the Chloride Variable Limit column on the DMR.
Mercury, Total Recoverable		ng/L	Annual	Grab	See mercury section below.
Temperature Maximum		deg F	3/Week	Continuous	Monitoring in calendar year 2026 (January 1 - December 31)
Acute WET		TUa	See Listed Qtr(s)	24-Hr Flow Prop Comp	Annually in rotating quarters. See WET section below.
Chronic WET	Monthly Avg	1.3 TUc	See Listed Qtr(s)	24-Hr Flow Prop Comp	Annually in rotating quarters. See WET section below.

3.1.1 Changes from Previous Permit

Effluent limitations and monitoring requirements were re-evaluated for the proposed permit term and the following changes were made from the previous permit;

- **Flow Rate:** Effluent flow rate reporting was added to the proposed permit. The permittee currently monitors effluent flow and reporting of the parameter is used when verifying the calculation of mass based effluent limitations.
- **Total Suspended Solids:** Effluent concentration limits were also updated to meet requirements of the TMDL. The previous weekly average concentration limit of 15 mg/L (year-round) was retained for the months of January, May, November, and December and lowered to 12 mg/L for the months February – April and June – October. The previous monthly average concentration limit of 15 mg/L (year-round) was lowered to 12 mg/L (year-round).
- **Fecal Coliform and E. coli:** Fecal coliform monitoring and limits have been replaced with Escherichia coli (E. coli) monitoring and limits. E. coli monitoring and limits become effective on May 1, 2022. E. coli limits of 126 #/100ml as a monthly geometric mean that may never be exceeded, and 410 #/100 ml as a daily maximum that may not be exceeded more than 10 percent of the time in any calendar month, will apply.
- **Total Nitrogen Monitoring (TKN, N02 + N03 and Total N):** Quarterly monitoring was added to the proposed permit.
- **Total Phosphorus:** For this permit term, the City of Cedarburg will begin implementing Adaptive Management Plan WQT-2021-0011 (September 2021) to meet the TMDL derived phosphorus limits as allocated in the Milwaukee River Basin TMDL. A total phosphorus Adaptive Management Interim Limit of 0.6 mg/L will apply starting in May 2022.
- **Chloride:** Final chloride limits are included in the proposed permit and become effective on October 1, 2024 per a schedule and include a weekly average limit of 490 mg/L, a monthly average limit of 490 mg/L, a weekly average limit of 11,000 lbs/day (during dry weather conditions), and a weekly average limit of 31,000 lbs/day (during wet weather conditions).
- **Chronic WET:** A chronic monthly average limit of 1.3 TUc was added to the proposed permit.

3.1.2 Explanation of Limits and Monitoring Requirements

Monitoring frequencies for parameters that have final effluent limits in effect during this permit term were evaluated taking into consideration requirements in administrative code along with recommendations provided in the Monitoring Frequencies for Individual Wastewater Permits guidance (April 12, 2021). The monitoring frequencies for applicable parameters in Cedarburg's proposed permit have been evaluated and were retained based on the following considerations:

- Actual vs. Design Flow Comparison: Actual average flow (2.13 MGD) remains below the annual average design flow (2.75MGD).
- Effluent Variability: Treatment processes used at the plant have proven effective, achieving pollutant removal requirements per s. NR 210.05(1), Wis. Adm. Code, on a consistent basis. The facility consistently meets effluent limits, maintains permit compliance, and does not have a history of plant upsets.
- Influent Sources: The plant receives primarily domestic waste from the collection system and domestic holding tank waste and does not receive complex waste or high strength industrial waste that would warrant an increase in monitoring frequency.

Categorical Limits

- **BOD_5, Total Suspended Solids, pH, and Dissolved Oxygen:** Standard municipal wastewater requirements for BOD_5, total suspended solids, pH, and dissolved oxygen are included based on ch. NR 210, Wis. Adm. Code 'Sewage Treatment Works' requirements for discharges to fish and aquatic life streams. Chapter NR 102, Wis. Adm. Code 'Water Quality Standards for Surface Waters' also specifies requirements for pH for fish and aquatic life streams.

Water Quality Based Limits and WET Requirements

Refer to the "Water Quality-Based Effluent Limitations for the City of Cedarburg", prepared by Nicole Krueger, dated December 7, 2021 and used for this reissuance.

- **Total Suspended Solids:** Consistent with Section 6.4.1 of the approve Milwaukee River TMDL Report a monthly average limit of 12 mg/L (year-round) and a weekly average limit of 12 mg/L (February – April and June – October) are included in the proposed permit. See pages 11-13 of the December 7, 2021 WQBEL memo for the City of Cedarburg for a more detailed explanation of TMDL limit requirements.
- **E. Coli:** Revisions to bacteria surface water quality criteria to protect recreational uses and accompanying E. coli WPDES permit implementation procedures became effective May 1, 2020. The new rule requires that WPDES permits for facilities with required disinfection include monitoring for E. coli while facilities are disinfecting during the recreation period and establish effluent limitations for E. coli established in s. NR 210.06 (2), Wis. Adm. Code. The administrative code rule changes included the following actions: revised the bacteria water quality criteria from fecal coliform to E. coli to protect recreation in ch. NR 102, Wis. Adm. Code; removed fecal coliform criteria for certain individual waters from ch. NR 104, Wis. Adm. Code; revised permit requirements for publicly and privately owned sewage treatment works in ch. NR 210, Wis. Adm. Code; and updated approved analytical methods for bacteria in ch. NR 219, Wis. Adm. Code.
- **Total Ammonia Nitrogen:** Current acute and chronic ammonia toxicity criteria for the protection of aquatic life are included in Table 2C and Table 4B of ch. NR 105, Wis. Adm. Code (effective March 1, 2004). Subchapter IV of ch. NR 106 establishes procedures for calculating water quality-based effluent limitations (WQBELs) for ammonia (effective March 1, 2004).
- **Total Nitrogen Monitoring (NO2 + NO3, TKN and Total N):** The Department has included effluent monitoring for Total Nitrogen in the permit through the authority under s. 283.55(1)(e), Wis. Stats., which allows the department to require the permittee to submit information necessary to identify the type and quantity of any pollutants discharged from the point source, and through s. NR 200.065(1)(h), Wis. Adm. Code, which allows for this monitoring to be collected during the permit term. Quarterly effluent monitoring for Total Nitrogen is included in the permit because of the potential for higher nitrogen loading resulting from higher flows (major facilities), higher concentrations, or both. More information on the justification to include total nitrogen monitoring in wastewater permits can be found in the "Guidance for Total Nitrogen Monitoring in Wastewater Permits" dated October 1, 2019.
- **Total Phosphorus:** The proposed permit will be Cedarburg's second permit term under new administrative rules for phosphorus discharges that took effect December 1, 2010. Details regarding the administrative rules for phosphorus discharges may be found at: http://dnr.wi.gov/topic/surfacewater/phosphorus.html. The new phosphorus rules are contained in s. NR 102.06 and ch. NR 217, Subchapter III. Cedarburg's final water quality based effluent limits (WQBELs) for phosphorus are based on the approved Milwaukee River TMDL and are listed in the table below:

Total Phosphorus Effluent Limitations

Month	Monthly Ave Total P Effluent Limit (lbs/day)
Jan	3.71
Feb	4.19
March	3.88
April	4.25
May	5.14

June	4.50
July	3.88
Aug	3.32
Sept	3.67
Oct	3.46
Nov	3.73
Dec	3.54

Adaptive Management for Total Phosphorus Compliance: Cedarburg requested, and the Department approved, a plan to implement a watershed adaptive management approach under s. NR 217.18, Wis. Adm. Code and s. 283.13(7) Wis. Stats. as a means for Cedarburg to achieve compliance with the phosphorus water quality standard in s. NR 102.06, Wis. Adm. Code. The phosphorus limitations and conditions in this permit reflect the approved Adaptive Management (AM) Plan WQT-2021-0011 (September 2021). The permittee shall design and implement the actions identified in the approved AM Plan WQT-2021-0011 (September 2021) in accordance with the goals and measures identified. The goal of the AM plan is to reduce phosphorus loadings within the watershed action area by a minimum of 514 lbs/yr by the end of this permit term. In addition, annual progress reports are required. See Schedules section for more details. The Department may terminate the AM option based on the reasons enumerated in NR 217.18(3)(e)2, Wis. Adm. Code.

The permit contains an interim adaptive management phosphorus limit of 0.6 mg/L expressed as a six-month seasonal average and a compliance schedule for meeting the limit starting May 1, 2022. The averaging periods for the six-month average limit are May through October and November through April. Compliance with the 0.6 mg/L six-month interim limit is evaluated at the end of each six-month period on April 30 and October 31 annually. The 0.8 mg/L monthly average phosphorus limit is in effect for the duration of the reissued permit.

Surface water monitoring requirements are included in the proposed permit in support of the goals and measures of the Adaptive Management Plan and are discussed in more detail in following subsections of this fact sheet. Sampling is required once per month from May through October outlined in the approved Adaptive Management Plan.

- **Chloride:** Acute and chronic chloride toxicity criteria for the protection of aquatic life are included in Tables 1 and 5 of ch. NR 105, Wis. Adm. Code. Subchapter VII of ch. NR 106 establishes the procedure for calculating water quality based effluent limitations (WQBELs) for chloride. If the permittee's effluent data shows that a calculated WQBEL for chloride cannot be met, then the permit will include a chloride effluent limitation. Cedarburg's effluent chloride values were higher than the calculated weekly average limit of 490 mg/L and a compliance schedule to continue implementation of Source Reduction Measures has been included with an effective date of October 1, 2024 for the following final WQBELs: 490 mg/L (weekly average), 490 mg/L (monthly average), 11,000 lbs/day (weekly average during dry weather conditions), and 31,000 lbs/day (weekly average during wet weather conditions).
- **Total Recoverable Mercury:** Representative data shows there is no reasonable potential for Cedarburg to exceed the water quality-based 1.3 ng/L monthly average limit, therefore no mercury limit is recommended in the proposed permit. Annual mercury monitoring is continued in the proposed permit. Requirements for mercury are included in s. NR 106.145, Wis. Adm. Code.
- **Temperature:** Temperature data collected between January 2020 through December 2020 indicated the need for weekly average temperature maximum limitations for the month of November, pursuant to the procedures in ch. NR 106, Wis. Adm. Code. Therefore, sub-lethal weekly average effluent limitations for these months should be included in the proposed permit. However, ch. NR 106.59(4), Wis. Adm. Code, allows publicly operated

treatment works to perform a dissipative cooling (DC) demonstration, which if successful, justifies exclusion of sub-lethal weekly average effluent temperature limits in municipal discharge permits. Cedarburg submitted a successful DC demonstration which was approved by the Department in 2014 and the permittee has stated that there haven't been any significant changes in the expected effluent temperatures or industrial loading.

The proposed permit includes daily temperature maximum monitoring during calendar year 2026 and will be used for the next permit reissuance. In addition, dissipative cooling requests must be re-evaluated every permit reissuance. The permittee is responsible to submit an updated DC request as part of the permit application. Such a request must either include:

- A statement by the permittee that there have been no substantial changes in operation of, or thermal loadings to, the treatment facility and the receiving water; or
- New information demonstrating DC to supplement the information used in the previous DC determination. If significant changes in operation or thermal loads have occurred, additional DC data must be submitted to the Department.

- **Whole Effluent Toxicity:** Whole effluent toxicity (WET) testing requirements are determined in accordance with ss. NR 106.08 and NR 106.09, Wis. Adm. Code, as revised August 2016. (See the current version of the Whole Effluent Toxicity Program Guidance Document and checklist and WET information, guidance and test methods at http://dnr.wi.gov/topic/wastewater/wet.html). Based on data collected from 07/28/2005 to 02/18/2020, no reasonable potential for acute whole effluent toxicity is shown, and therefore a limit is not required. According to requirements specified in s. NR 106.08. Wis. Adm. Code, and because reasonable potential for chronic toxicity exists, a chronic WET limit of 1.3 TUc is included in the proposed permit. Acute and chronic WET tests are scheduled in the following quarters: **October-December 2022; July-September 2023, January-March 2024, April-June 2025, and October – December 2026.**

3.2 Sample Point Number: 601- Cedar Creek Downstream

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Flow River		cfs	Monthly	Measure	Provide an estimate of river flow for each day that in-stream phosphorus monitoring is performed May 1 through October 31 annually.
Flow River		cfs	Per Occurrence	Measure	Voluntary river flow estimates for each day that in-stream phosphorus monitoring is performed November 1 through April 30 annually.
Phosphorus, Total		mg/L	Monthly	Grab	Collect samples monthly May 1 through October 31 annually. See permit sections for sampling and reporting requirements.
Phosphorus, Total		mg/L	Per	Grab	Voluntary monitoring

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
			Occurrence		November 1 through April 30 annually. See permit sections for sampling and reporting requirements.
Phosphorus, Total		lbs/month	Monthly	Calculated	Calculate and report total monthly phosphorus loads for the months of May through October annually. See permit section for calculation of total monthly loads.
Phosphorus, Total		lbs/month	Per Occurrence	Calculated	Calculated total phosphorus loads may also be reported for the months of November through April, as data is available. See permit section for calculation of total monthly loads.

3.2.1 Changes from Previous Permit

Downstream surface water monitoring was not required during the previous permit term. Monitoring is included as part of the approved Adaptive Management Plan WQT-2021-0011 (September 2021) requirements.

3.2.2 Explanation of Limits and Monitoring Requirements

As part of the Adaptive Management Plan requirements, downstream monitoring for river flow rate, in-stream phosphorus concentration and total monthly in-stream phosphorus loads is required during the months of May through October. Monitoring for these same parameters is voluntary during the months of November through April. When voluntary monitoring is completed, results must be reported on the monthly eDMR. The in-stream phosphorus concentration and river flow rate are used to calculate the total monthly loading of phosphorus in Cedar Creek on a monthly basis. This monitoring will allow the permittee to demonstrate reductions in phosphorus loading for each month of the year.

4 Land Application - Proposed Monitoring and Limitations

Municipal Sludge Description						
Sample Point	**Sludge Class (A or B)**	**Sludge Type (Liquid or Cake)**	**Pathogen Reduction Method**	**Vector Attraction Method**	**Reuse Option**	**Amount Reused/Disposed (Dry Tons/Year)**
002	B	Liquid	Sludge is hauled to another permitted facility. The fecal coliform pathogen reduction and injection vector attraction method shall be used if permittee land			253 dry U.S. tons (2021 permit application)

Municipal Sludge Description						
Sample Point	**Sludge Class (A or B)**	**Sludge Type (Liquid or Cake)**	**Pathogen Reduction Method**	**Vector Attraction Method**	**Reuse Option**	**Amount Reused/Disposed (Dry Tons/Year)**
			applies sludge.			
Does sludge management demonstrate compliance? **Yes**						
Is additional sludge storage required? **No**						
Is Radium-226 present in the water supply at a level greater than 2 pCi/liter? **No**						
Is a priority pollutant scan required? **No** Priority pollutant scans are required once every 10 years at facilities with design flows between 5 MGD and 40 MGD, and once every 5 years if design flow is greater than 40 MGD.						

4.1 Sample Point Number: 002- AEROBIC LIQUID SLUDGE

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Solids, Total		Percent	Annual	Composite	
Arsenic Dry Wt	Ceiling	75 mg/kg	Annual	Composite	
Arsenic Dry Wt	High Quality	41 mg/kg	Annual	Composite	
Cadmium Dry Wt	Ceiling	85 mg/kg	Annual	Composite	
Cadmium Dry Wt	High Quality	39 mg/kg	Annual	Composite	
Copper Dry Wt	Ceiling	4,300 mg/kg	Annual	Composite	
Copper Dry Wt	High Quality	1,500 mg/kg	Annual	Composite	
Lead Dry Wt	Ceiling	840 mg/kg	Annual	Composite	
Lead Dry Wt	High Quality	300 mg/kg	Annual	Composite	
Mercury Dry Wt	Ceiling	57 mg/kg	Annual	Composite	
Mercury Dry Wt	High Quality	17 mg/kg	Annual	Composite	
Molybdenum Dry Wt	Ceiling	75 mg/kg	Annual	Composite	
Nickel Dry Wt	Ceiling	420 mg/kg	Annual	Composite	
Nickel Dry Wt	High Quality	420 mg/kg	Annual	Composite	
Selenium Dry Wt	Ceiling	100 mg/kg	Annual	Composite	
Selenium Dry Wt	High Quality	100 mg/kg	Annual	Composite	
Zinc Dry Wt	Ceiling	7,500 mg/kg	Annual	Composite	
Zinc Dry Wt	High Quality	2,800 mg/kg	Annual	Composite	

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Nitrogen, Total Kjeldahl		Percent	Annual	Composite	
Nitrogen, Ammonium (NH4-N) Total		Percent	Annual	Composite	
Phosphorus, Total		Percent	Annual	Composite	
Phosphorus, Water Extractable		% of Tot P	Annual	Composite	
Potassium, Total Recoverable		Percent	Annual	Composite	
PCB Total Dry Wt	Ceiling	50 mg/kg	Annual	Composite	
PCB Total Dry Wt	High Quality	10 mg/kg	Annual	Composite	

4.1.1 Changes from Previous Permit:

Sample frequency reduced from quarterly to annual based on volume of sludge produced in accordance with Table A under s. NR 204.06(2)(c)3., Wis. Adm. Code.

4.1.2 Explanation of Limits and Monitoring Requirements

Requirements for land application of municipal sludge are determined in accordance with ch. NR 204, Wis. Adm. Code. Ceiling and high-quality limits for metals in sludge are specified in s. NR 204.07(5). Requirements for pathogens are specified in s. NR 204.07(6) and in s. NR 204.07(7) for vector attraction requirements. Limitations for PCBs are addressed in s. NR 204.07(3)(k). Land application of waste shall be done in accordance with the permit conditions and applicable codes. All land application sites shall be approved prior to their use. To receive a list of approved sites, or to be notified of potential approvals, contact the WDNR compliance staff.

5 Schedules

5.1 Water Quality Based Effluent Limits (WQBELs) for Chloride

The permittee shall comply with the WQBELs for Chloride as specified.

Required Action	Due Date
Chloride Status Report: Submit a report on the status of meeting the weekly and monthly average water quality based effluent limit of 490 mg/L. The status report shall: Indicate which chloride source reduction measures or activities have been implemented and will continue to be implemented in order to meet the limits; Include an analysis of trends in weekly, monthly, and annual average chloride concentrations and total mas discharge of chloride based on chloride sampling and flow data; and Include an analysis of how effluent chloride varies with time and with significant loadings of chloride such as loads from industries and road salt intrusion into the collection system. The chloride status	03/31/2023

report is to be submitted by the Due Date.	
Chloride Status Report: Submit the chloride status report as defined above.	03/31/2024
Chloride WQBELs Effective: The chloride water quality based effluent limits take effect by the Date Due.	10/01/2024

5.1.1 Explanation of Schedule

This compliance schedule is provided per s. NR 106.117(3)(a), Wis. Adm. Code. The schedule requires a status report that shall identify chloride source reduction measures implemented and analyze chloride concentration and mass discharge based on chloride sampling and flow data. The status report shall document progress towards meeting the final limits of 490 mg/L as weekly and monthly averages, and the variable weekly average mass limits of 31,000 lbs/day (for wet weather conditions) or 11,000 lbs/day (for dry weather conditions).

5.2 Watershed Adaptive Management Option Annual Report Submittals

The permittee shall submit annual reports on the implementation of AM Plan No. WQT-2021-0011 (September 2021) as specified in the "Phosphorus Limitation(s) and Adaptive Management Requirements" permit section and the following schedule.

Required Action	Due Date
Annual Adaptive Management Report: Submit an annual adaptive management report. The annual adaptive management report shall: o Identify those actions from the Section 2.4 of the approved adaptive management plan that were completed during the previous calendar year and those actions that are in progress; o Evaluate collected monitoring data; o Document progress in achieving the goals and measures identified in the approved adaptive management plan; o Describe the outreach and education efforts that occurred during the past calendar year; o Identify any corrections or adjustments to the adaptive management plan that are needed to achieve compliance with the phosphorus water quality standards specified in s. NR 102.06, Wis. Adm. Code; o Describe any updates needed to Cedarburg's approved phosphorus optimization plan; o Submit results from all sample points outlined in AM plan No. WQT-2021-0011 (September 2021) to the Department using the Department's Laboratory Data Entry System (LDES).	03/31/2023
Annual Adaptive Management Report #2: Submit an Adaptive Management report with the required information described in this section (see above).	03/31/2024
Annual Adaptive Management Report #3: Submit an Adaptive Management report with the required information described in this section (see above).	03/31/2025
Final Adaptive Management Report: Submit the final Adaptive Management (AM) report documenting progress made throughout the AM project in meeting the watershed phosphorus reduction target of 514 lbs/yr, and in stream water quality standards specified in s. NR 102.06, Wis. Adm. Code. The report shall summarize AM activities that have been implemented during the current permit term and state which, if any, actions from the approved AM plan No. WQT-2021-0011 (September 2021) were not pursued and why. The report shall include an analysis of trends on both a monthly and six-month average basis for concentrations and mass effluent discharged. Additionally, there should be an analysis of any improvements to the quality of surface waters in the Adaptive	03/31/2026

Management Action Area focusing on phosphorus and flow results collected during the permit term. The surface water analysis shall evaluate how the in-stream loadings have changed over the permit term in comparison to implemented AM actions.	
Renewal of Adaptive Management Plan for Permit Reissuance: If the permittee intends to seek renewal of AM plan No. WQT-2021-0011 (September 2021) per s. NR 217.18, Wis. Adm. Code, for the reissued permit term, proposed AM goals and actions based on an updated AM plan shall be submitted to the Department for review and approval. The permittee may propose to adjust load reductions required by AM plan No. WQT-2021-0011 (September 2021) either up or down at the beginning of each WPDES permit term to reflect changes in loads associated with point and non-point sources. This schedule may be modified to incorporate any changes in AM goals and actions, removed if the AM program is terminated per the "Adaptive Management Reopener Clause" permit section, or removed if the adaptive management plan has achieved water quality standards as determined by the Department within the AM action area.	09/30/2026
Achieve Water Quality Standards and Adaptive Management Plan Success: All the receiving waters identified within the AM plan WQT-2021-0011 (September 2021) shall comply with water quality standards specified in s. NR 102.06, Wis. Adm. Code. The permittee shall continue to comply with applicable effluent limits required under s. 217.18(3)(e)(3), Wis. Stats. (0.5 mg/L expressed as a 6-month avg and 0.8 mg/L as a monthly avg) and continue monitoring surface waters per AM plan WQT-2021-0011 (September 2021) at a minimum of monthly May through October for total phosphorus.	04/01/2027

5.2.1 Explanation of Schedule

This schedule requires the permittee to submit annual adaptive management (AM) annual reports that show progress towards meeting the goals and measures contained in the approved AM plan. The final AM Report for this permit term must document the success of meeting the watershed phosphorus minimum reduction target of 514 lbs/yr. The schedule may be modified at permit reissuance, should changes in AM goals and measures or timing necessitate different dates for schedule items. Pursuant to s. NR 217.18(1) Wis. Adm. Code., phosphorus water quality criteria must be achieved "as soon as possible". The duration for this adaptative management schedule is 5 years. This timeframe is consistent with the approved adaptive management plan, and represents the shortest possible duration based upon the following factors that influence time required for the water body to achieve the phosphorus criterion:

• Magnitude of point and/or nonpoint source phosphorus reductions required.

• Costs associated with point and/or nonpoint source phosphorus reductions.

• For nonpoint source reductions, the time required to contact landowners and receive adequate participation to implement practices.

• Physical characteristics of the watershed and receiving water, including land use, soil properties, slopes, channel gradient, and level of legacy sediment/phosphorus currently in the system.

Attachments:

Water Quality Based Effluent Limitations for the City of Cedarburg dated December 7, 2021 and prepared by Nicole Krueger

Proposed Expiration Date:

March 31, 2027

Justification Of Any Waivers From Permit Application Requirements

No waivers were given from the permit application requirements.

Prepared By:

Laura Dietrich - WDNR Advanced Wastewater Specialist

Date: January 31, 2022